

**A Test of WVR-based Tropospheric Delay  
Calibration Using VLBI Observations  
on a 20 km Baseline**

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Six sessions of S/X band Very Long Baseline Interferometry (**VLBI**) observations on a 20 km baseline at Goldstone, CA were conducted in April and May 1993, using a 26 m and a 34 m Deep Space Network (**DSN**) antenna. An array of troposphere calibration instruments were used during these observations, and included a Water Vapor Radiometer (**WVR**) within 50 m of each of the two radio antennas, a Microwave Temperature Profiler at one site, radiosonde launches approximately every 6 hours at both sites, and surface meteorology at both sites.

This experiment was designed to test the error budget for WVR measurements, and to **allow** for a refinement in path delay retrieval algorithms. A preliminary analysis of the data has shown a substantial reduction in the scan-scan rms residual VLBI delay scatter using standard statistical retrieval algorithms for WVR line of sight delay estimates. Results will also be presented for advanced, or customized retrieval algorithms.

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